

Thermal, Structural and Mechanical Characterization of Strombus Gigas Shells

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During recent years the study of shells, developed by mollusks, has received an increasing interest. In particular in the case of the shell of *Strombus Gigas*, it has been shown that the microstructure of the shell, in the form of calcium carbonate crystals of a size of some microns joined by the organic matrix, forms a strong structure that could be as strong as artificially developed materials. It has also been demonstrated that thermal diffusivity and heat capacity of the shells could be helpful to understand the function of these materials as thermal boundaries between the animal and the environment, modulating the success of species, depending on the external temperature. One of the most interesting problems is the evolution of the physical properties of the shell when the animals grow-up from the earlier stages to adult age. In this work the evolution of the shell thermal and thermomechanical properties determined by the photoacoustic technique, as a function of the growth of the mollusk, is reported. Structural and mechanical properties of the shells have also been determined in order to correlate them with the thermomechanical measurements. The comparison in the physical properties of the *Strombus* shells with other species of mollusk shells is also discussed.